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II

ERTS

E7.6-10241.

CR-146524

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(E76-10241) REMOTE SENSING IN MINERAL
EXPLORATION FROM LANDSAT IMAGERY Quarterly
Report, Jun. - Sep. 1975 (Utah Univ.) 4 p
HC \$3.50 CSCL 14E

N76-20589

Unclas
G3/43 00241

Notes
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SIS/902.6

THE UNIVERSITY OF UTAH

COLLEGE OF MINES
AND MINERAL INDUSTRIES

DEPARTMENT OF GEOLOGY
AND GEOPHYSICS
717 MINERAL SCIENCE BUILDING

November 3, 1975

Mr. James Broderick
Technical Officer, Code 902
NASA
Goddard Space Flight Center
Greenbelt Road
Greenbelt, Maryland 20771

Nachursch, M P (P)

re: Contract No: NAS 5-20955

subject: Quarterly Report (2)
June - Sept.

A. Problems

The optical equipment ordered for the project was not received until late in the 2nd quarter of work.

Image acquisitions of acceptable quality have been limited due to cloud cover during the unseasonably prolonged spring precipitation and the early fall storms which have resulted in snow cover at higher elevations.

B. Accomplishments

Work has been carried forward utilizing LANDSAT - 1 imagery taken prior to 1974 available in our departmental files. Retrospective orders for later images have been placed to provide additional LANDSAT data.

Mrs. M.R. Smith and Mr. T.A. Belchak continue their work on the proposal on a full time basis. Several lines of investigation are progressing simultaneously.

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I - Several hundred linear features (possible geological lineaments) have been recognized on the 1:250,000 paper print LANDSAT mosaic assembled during the 1st quarter. These have been plotted on the AMS topographic map coverage of the test site. We are now evaluating the possible association of these linears with known mining districts.

The relationship of linear recognition as a function of imagery scale is also under study.

II - Additionally, mining districts imaged on positive LANDSAT transparencies are being individually examined at a scale of 1:250,000 for possible relationships of local linears to local geology. The ultimate goal is to determine if a synthesis of the district patterns will account for observed regional patterns.

III.- The East Tintic Mining District has been selected as one of our areas for detailed analysis. Visual and optical-mechanical methods are being pursued to delineate areas of hydrothermal alteration and chemical weathering often associated with mineral deposits and gossan formation.

The list of other mining districts that are being considered for detailed analysis include Park City and Gold Hill in Utah and Battle Mountain and Yerrington in Nevada.

C. Significant Results

None

D. Publications

None

E. Recommendations

Due to the limited number of images we are receiving we recommend that our standing order be changed as follows:

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1. Time restrictions - remove
2. Imagery - All LANDSAT 1 & 2 in test area
3. Quality - 5555 minimum
4. Cloud - 20% maximum
5. Data products - # 11 (2.2" positive) S
 # 13 (7.3" positive) T

F. Funds Expended

Total expenditures to 9-30-75	\$	33,237.48
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G. Data Use

Value of data allowed	\$	9,300
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Value of data ordered	\$	4,702
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Value of data received	\$	1,382
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Respectfully submitted

C.E. Cronenwett
Research Assistant for
M.P. Nackowski
L.H. Lattman

CEC:mkd

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